# DEXnet

## Installing Dexis on a Network

Release 3.00, January 2000


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## 1 Introduction

This paper describes the steps necessary when installing Dexis on an existing computer network with several workstations running Windows95, Windows98, or WindowsNT. The network hardware (cables, network cards) and the protocols used are not part of this paper. You should contact a local computer professional to set up your network. The Dexis program only uses features provided by all networks: mapping server disks or folders to local drive letters, and synchronizing file access.

**Note:** You need a valid DEXnet site license to run Dexis software on a network.

If you just want to connect two computers together (e.g. two laptop computers or your new Dexis laptop with an existing desktop computer), two inexpensive and easy ways are possible:

- 'Direct cable connection' via the printer ports is the cheapest way to connect two computers. Since this may well be used for initially connecting a laptop to either another laptop or to one computer in your existing network, the setup of this type of network (YES, if you connect two computers you already have a network!) is described in this paper

(see 'Direct Cable Connection'). Everything that is said about installing Dexis on a network also holds for this simple network.

- If you run Windows98 and both computers have USB ports, you may use a USB based peer-to-peer network.

## 2 Planning the Installation

Two things are necessary to know before you start installing Dexis:

a) Are all computers permanently connected to the network when they are used to take x-rays; or do you take x-rays with a laptop offline?
If all your computers are permanently hooked up to the network, a standard network installation with the data directory on the server is the installation of choice. This installation has the advantage that all images are always immediately on the file server and thus accessible from all connected computers (see 'Standard Network Installation').
If you plan to use your laptop to take x-rays while it is not connected to the network, you need to install Dexis on your laptop with the data directory on the local drive. For synchronizing the laptop databases with the file server you need DEXsync (see 'Offline Installation'). This is the only case when you have to install DEXsync.

b) Is it intended to link Dexis to practice management software? In this case you have to prevent Dexis from issuing patient numbers and use the numbers issued by the practice management software instead (see 'Practice Management Connection'). In the case of two separate image databases being synchronized using DEXsync ('Offline Installation') you also have to use manual patient numbers.

## 3 Software

Two programs are relevant for Dexis network installation. They are both located on the Dexis CD-ROM:

| | |
|---|---|
| DEXsync | serves to synchronize image databases and is to be installed if needed.<br>**Note:** this program is only needed if you plan to use Your laptop for taking x-rays while being disconnected from the network. |
| DEXcopy | may be used to copy and reorganize image databases. Since release 3.00, this program is automatically copied to your harddrive when Dexis is installed. It |

can be started from Windows Explorer by double cliicking on its icon. With previous versions of Dexis, DEXcopy comes on the DEXnet diskette and can be run from the diskette by choosing 'Start' then 'Run' and typing A:\DEXCOPY.
**Note:** The use of DEXcopy is password protected, since it can be used to destroy the integrity of your image database. Call Dexis technical support for the maintenance password. Always make a backup copy before copying or restructuring image databases.

# 4 Standard Network Installation

## *4.1 New Installation*

If Dexis has not yet been installed on your network, proceed as follows:

- Select the computer and its harddrive to hold the Dexis images (the 'server'). Share this harddrive to be accessible from all workstations. you need full access and should not enter a password.

- Install the Dexis software on the server. If your server uses a different operating system (e.g. Unix or Novell), create the directory \Dexis\Data manually on the server drive.

- Map the server drive on all workstations where you want to see the Dexis images or where you want to take X-rays. Use the same drive letter on all workstations, we propose 'X' (for X-ray).

- Install the Dexis software on all workstations choosing C:\Dexis for the software, and \Dexis\Data on the server drive (e.g. X:\Dexis\Data) for the data directory. **Note:** The software should always be installed on all workstations on the local drives – you should not share the software over the network.

## *4.2 Adding a Workstation*

To add a workstation, you just have to connect it to the network, map the server drive containing the Dexis images, and install the Dexis software on

the local drive, assigning the server drive and directory (e.g. X:\Dexis\Data) to be used as data directory.

### *4.3 Switching from a Local Installation to a Network Installation*

Laptops delivered by us come with a local Dexis installation, which issues its own patient numbers. This section describes how you modify this installation for use in a network. The local installation may already contain data.

- Make sure, Dexis is installed on your server that is to hold the Dexis images. and that the server drive is shared, i.e. accessible from other workstations. If the server runs a different operating system (e.g. Unix, Novell), create the directory \Dexis\Data on the server drive.

- On your workstation holding the Dexis data to be moved to the server install the network and map the network drive to a drive letter

- Run DEXcopy on the Workstation to be connected. This program will will propose C:\Dexis\Data as source directory, and ask you for a destination data directory. Type in the full drive and path (e.g. X:\DEXIS\DATA) of the new data directory on the server. If you want to switch to patient numbers from a practice management system, check the box 'Always ask for new patient numbers'. Then click 'Start transfer'.
  The program will transfer all existing patients and images to the server drive.
  If you selected to change the patient numbers, it will ask you for a new number for each patient; otherwise it will only ask you if a patient with the same number but different name is already present on the network drive.
  After finishing the transfer, DEXcopy will ask you whether to adapt the program settings. If you answer 'Yes', the program will do all necessary steps and you are connected. If you chose to change the patient numbers, DEXcopy will also change the settings so that in the future the Dexis program will not issue its own numbers. You are now ready to connect to your practice management software.

- Repeat the copying process using DEXcopy on all connected workstations that have their own image databases. DEXcopy can merge several Dexis image databases.

- When all data is transferred and everything runs fine, you may delete the directory C:\DEXIS\DATA and all its contents on the workstation that is now connected and accesses the data on the server.

**Note:** We propose to use DEXcopy for transferring your data, because DEXcopy can also merge image databases and can renumber patients. If you are sure that the destination directory does not contain any useful data, you can also copy the data directory using Windows or DOS methods.

## 5 Offline Installation

When explaining this installation, we will refer to one of the computers as the 'laptop', to the other one as the 'server'. Note that the server may also be a second laptop.

This type of installation means that you keep the local installation on your laptop and synchronize from time to time (when you are connected) with the server. If you install your Dexis software this way, you have the advantage of being able to carry your laptop freely around and taking X-rays with it or with your server. The disadvantage is that an additional step is necessary to be able to view all X-rays on all workstations.

- Backup all your data.

- Install Dexis on the server and on the laptop computer, if not already installed. In both cases give it data directory on a local drive (e.g. C:\Dexis\Data).
- On both local installations on your laptop and on your server you will have to change the setting to manual patient numbers. Otherwise the system will issue the same numbers for different patients on different computers (see 'Practice Management Connection'). You will also have to renumber existing patients to reflect the chart numbers from your practice management software.

- Connect the laptop to the network and map the network drive.

- Install DEXsync from the Dexis CD-ROM on the laptop. Give it C:\Dexis as installation directory.

- Copy the 'DEXsync' shortcut to your desktop.

- If both image databases, the one on the laptop and the one on the server, contain different data, you have to merge the two databases using DEXcopy. Start DEXcopy on your laptop, and give it the local data directory as source, and the remote server directory as destination. Then

delete the contents of the C:\Dexis\Data directory on your laptop. Leave the directory itself intact.

- Start DEXsync; give it the local data directory (C:\Dexis\Data) as source and the remote data directory (e.g. X:\Dexis\Data) as destination. Since DEXsync synchronizes, i.e. copies in both directions, this will result in two equal image databases on your laptop and on your server.

You may now take x-rays offline. Make sure that you give your patients unique numbers; probably those issued by your practice management software.
Once a day or after each treatment, you may connect the laptop to the network and launch DEXsync by double clicking on its icon. This will synchronize the two databases so that all images are available on both computers. DEXsync will not ask you again for directories, but will use the same directories you gave it the first time.

If you have two offline laptops (A and B), which you use to take X-rays, but you do not take X-rays with the server, you should first synchronize laptop A with laptop B, then synchronize one of them with the server. If you use all three for taking X-rays, you have to synchronize A with the server, then B with the server, then A again (to get the images taken with laptop B).

# 6 Wireless Installation

For wireless networks you have two choices:

- If the connection is reliable and the network is fast enough, you use the standard network installation.
- If you have problems with the connectivity, you use the installation described under 'Offline Installation', thus storing the images on the local disks of the computers, and synchronize from time to time using DEXsync.

# 7 Practice Management Connection

To prepare Dexis for a connection to any practice management software you have to set it up so it does not issue its own patient numbers. This is done by the SETUP if you answer 'Yes' to the corresponding question. You can also switch to manual numbers later on, by changing the setting in the Preferences dialog of the patient administration.

If you have already entered patients and have to renumber them, you can do that in the Dexis patient administration by selecting each patient, clicking on Modify, and then changing the number. If you have plenty of patients to renumber, you can do that with the help of the DEXcopy program. Proceed as follows:

- Run the DEXcopy program. This program will ask you for source and destination data directories. The source directory is preset to the Dexis data directory. Leave that setting and leave the destination empty. Check the box 'Always ask for new patient numbers'. Then click 'Start transfer'. The program will go through all existing patients, and will ask you for new numbers. After the transfer is finished, all patients will have new numbers. The original image database is saved in a location, which DEXcopy will tell you. DEXcopy will also change the settings of the Dexis program so that it does not issue its own numbers anymore. You are therefore prepared to connect to your practice management software.

- When all data is transferred and everything is tested and runs fine, you may delete the old image database.

# 8 Direct Cable Connection

The cheapest way to connect two Windows95/98 computers to form a network is by connecting their printer ports with a so-called **LapLink** cable. This cable is the only hardware you need. The necessary software is part of Windows95 and makes a real network out of this handy and cheap piece of hardware (just bought one at $9.99). But it has to be installed and configured. This has to be done on both participating computers.

## *8.1 Installation of Direct Cable Connection*

Some laptops have 'direct cable connection' already installed when delivered. Check that, and install if necessary as follows:

1. Open up the Windows control panel and double-click on the Add/Remove Programs icon.
2. Select the Windows Setup tab. A list of installable and installed Windows95 components appears.
3. Select the Communications component and click on Details.
4. If Direct Cable Connection has a check mark next to it, it is already installed. You may then click OK. Otherwise click on the box next to it to

check it. Then click OK. If necessary, the system prompts you for the Windows95 CD-ROM.
5. After installation you have to restart the computer.

This is to be done on both participating computers.

### *8.2 Network Setup*

One of the connected computers plays the role of a **host**, while the other plays the role of a **guest**. The guest computer accesses shared resources (files) of the host computer and eventually of other computers connected to the host via network. This is exactly as other network nodes access shared resources on other computers. The host computer has to be set up in a way so that the guest computer is allowed to access its files. The following points thus apply only to the host computer:

1. Open up the Windows control panel and double-click on the Network icon.
2. Select the Identification tab and give your computer a meaningful name.
3. Select the Configuration tab and click on File and Print Sharing
4. In the File and Print Sharing dialog check 'I want to be able to give others access to my files', then click OK.
5. In the Network dialog click OK.
6. The system will ask you to restart your computer. Do that.

As noted above, this is to be done only on the host computer.

### *8.3 Sharing the Harddisk*

In order that the guest computer has access to the files on the harddisk (usually named C:) of the host computer, the host has to 'share' the harddisk:

1. Open up My Computer and right-click on the drive you wish to share (usually C:).
2. Click on Sharing...
3. Select the Sharing tab and there select Shared As
4. Enter a name, under which this drive is to be known by the guest computer; it is good practice to just use the drive letter as the name (e.g. C).
5. Under Access Type, click on Full, then click OK

These steps are to be done only on the host computer.

### *8.4 Configuring Direct Cable Connection*

In order to configure Direct Cable Connection on both computers; first connect the printer ports of the two computers with the LapLink cable. Then start Direct Cable Connection on both computers: click on Start, then Programs, and select Direct Cable Connection from the Accessories submenu. When you start the Direct Cable Connection for the first time, a wizard will help you in configuring it.

You now have to know which computer is to be the host (the one that presents its files), and which one is the guest (the one accessing the files on the host computer). The host computer has to have a meaningful name, and its harddisk has to be shared as described above.

1. The configuration wizard will first ask you, whether the computer you are using is to be the host or the guest. Answer accordingly.
2. The next question will be which connection you are to use. Select 'Parallel cable on LPT1' and click Next.
3. You probably do not want to use a password, so just click Finish.

These steps have to be done on both computers.

You might want to create a shortcut on your desktops for the Direct Cable Connection. Do this on both your computers by right clicking on the desktop and selecting New, then Shortcut. As command line enter on the host computer:

C:\WINDOWS\DIRECTCC.EXE GO

and on the guest computer:

C:\WINDOWS\DIRECTCC.EXE

This way you can later on start Direct Cable Connection on both your computers by double clicking on the icon.

### *8.5 Mapping the Network Drive*

On the guest computer you now have to map the shared harddisk of the host computer to a drive letter. To accomplish this, do the following:

1. Right-click on Network Neighborhood and select Map Network Drive.

2. Select a Drive which is not yet in use and which you can remember easily, then - under Path - type in two backslashes, followed by the name you gave your host computer, followed by one backslash, followed by the share-name you gave to the harddisk of the host computer. As an example, if the host computer is called 'HOST', and the harddisk has been shared as 'C', you have to enter the following path: \\HOST\C. If the computers are already connected, this entry can also be selected by clicking on the down-arrow right to the field.
3. Check 'Reconnect at logon' if you want to map the drive automatically every time you start your computer (recommended).

The steps above have to be done only on the guest computer.

### *8.6 Using Direct Cable Connection*

After Direct Cable Connection has been configured, the next time you start it, it uses the saved configuration unless you indicate otherwise. The GO parameter added to the command line on the host computer makes that the program immediately starts listening to a connection. If you want to reconfigure the program, you have to start it without the GO parameter.

When the computers are connected and Direct Cable Connection is started on both of them, you see the harddisk of the host computer on your guest computer as a network drive.

If you want to use Dexis Exchange to synchronize image databases on the 2 computers connected, install Dexis Exchange on the guest computer and specify \DEXIS\DATA on the mapped drive as the destination directory (e.g. F:\DEXIS\DATA, if you mapped the host computers harddisk to drive letter F:).